FIG. 1A

CONVENTIONAL DRAWING METHOD OF EXPRESSING GRAYSCALE

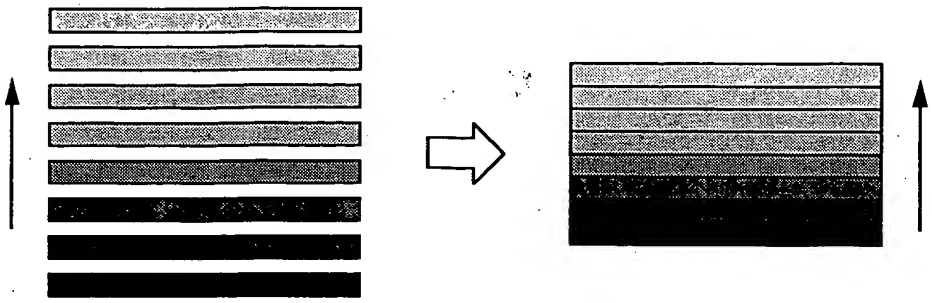


FIG. 1B

DRAWING METHOD OF EXPRESSING GRAYSCALE
USING RECTANGULAR GRADIENT FILL OBJECT

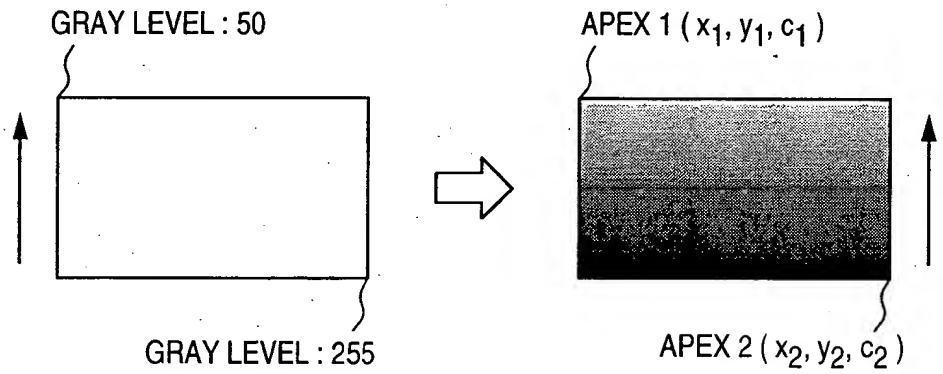


FIG. 1C

DRAWING METHOD OF EXPRESSING GRAYSCALE
USING TRIANGULAR GRADIENT FILL OBJECT

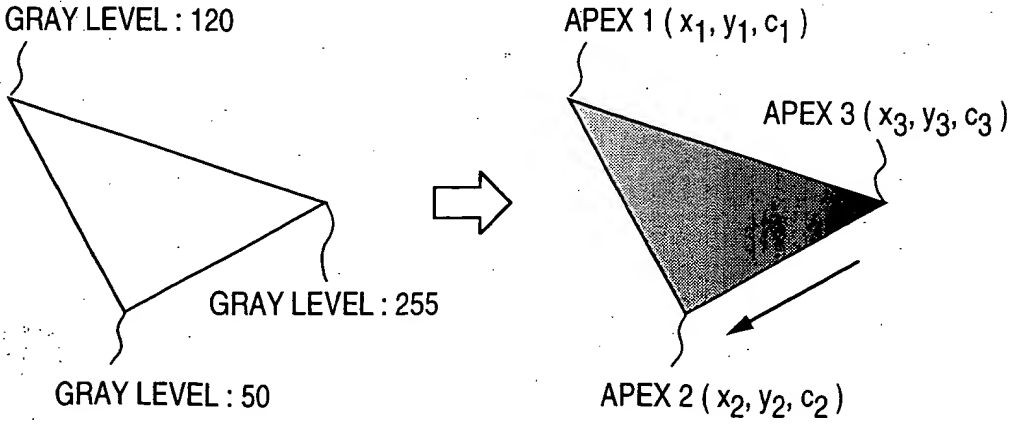


FIG. 2

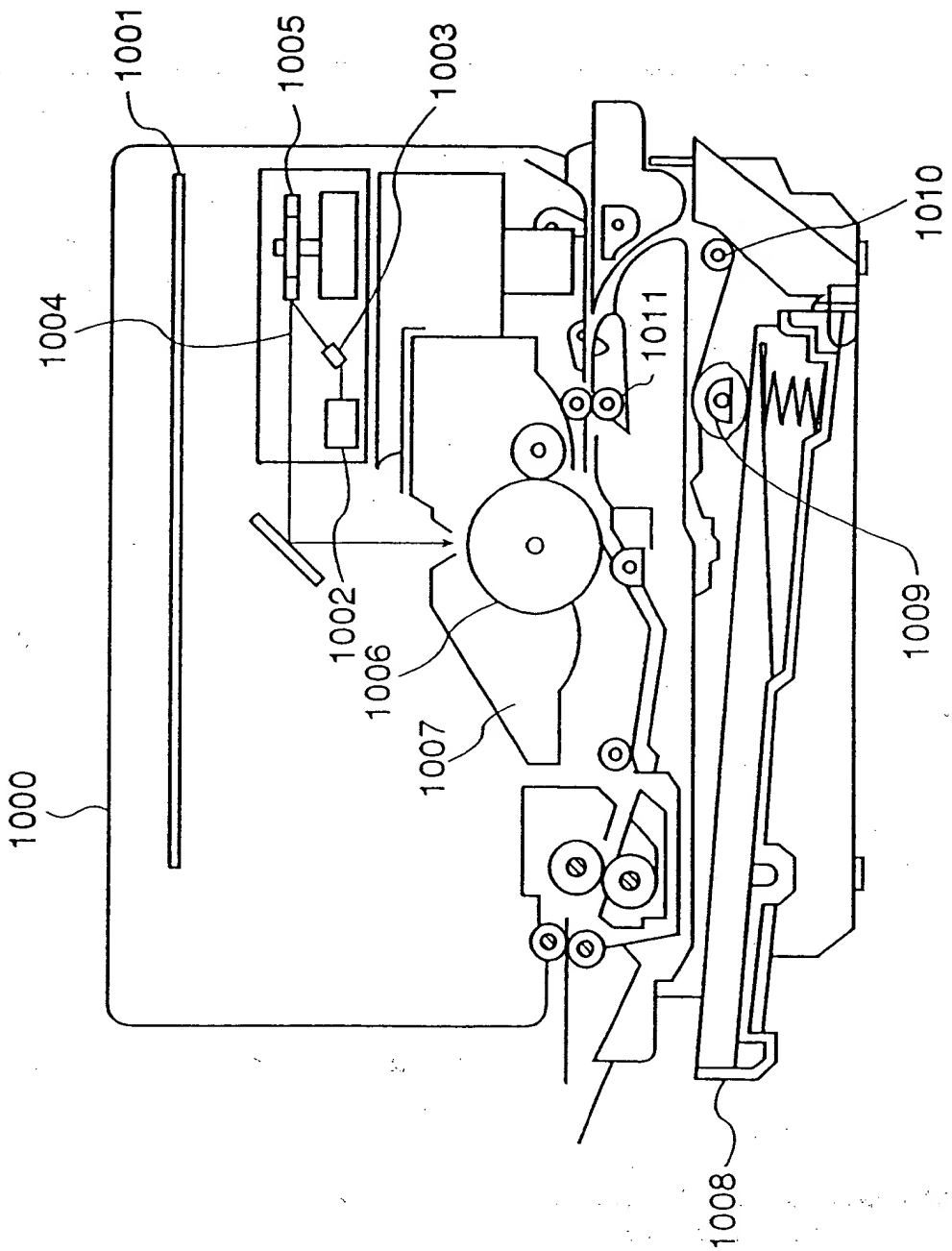


FIG. 3

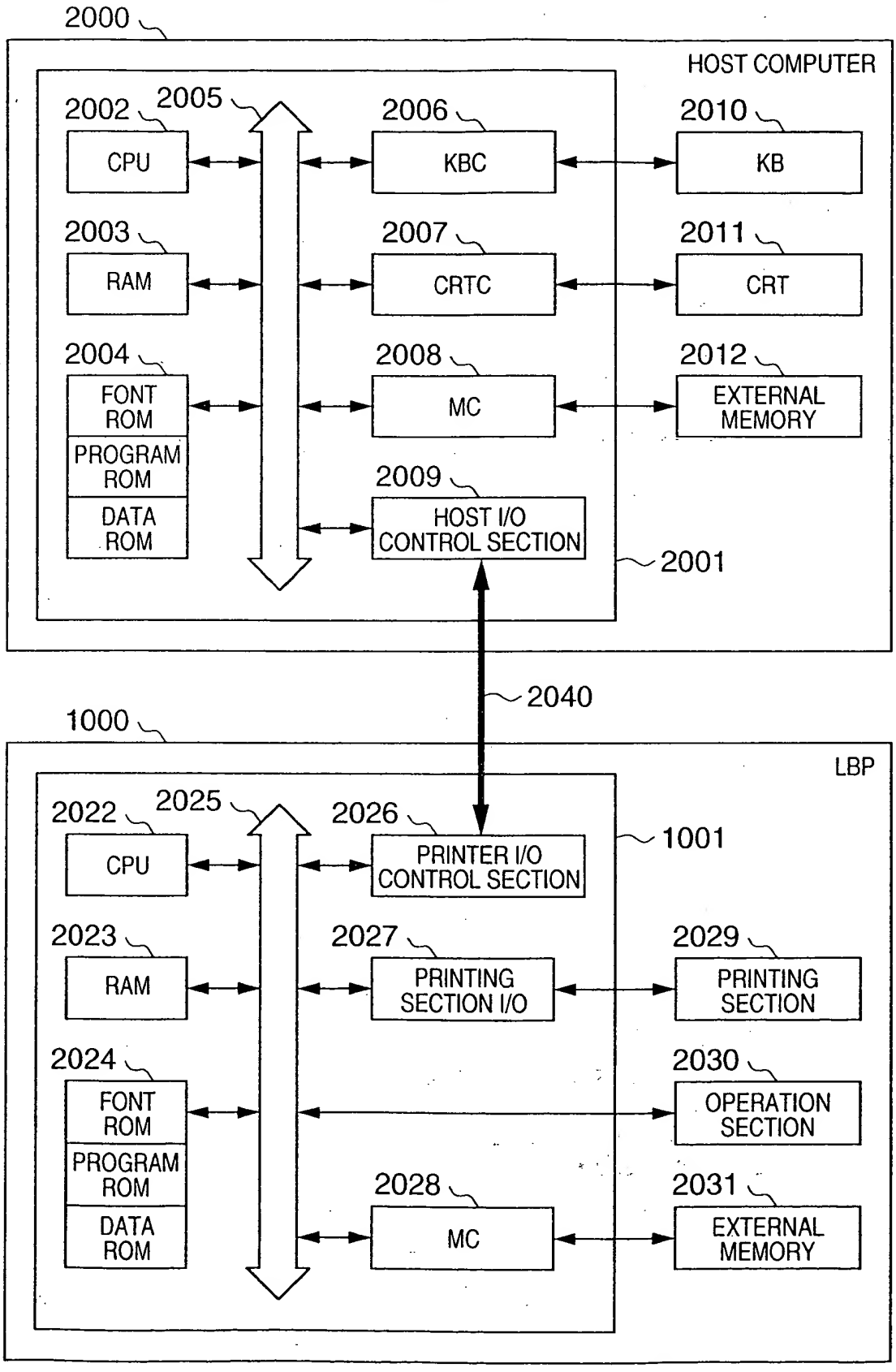

2000
HOST COMPUTER
2002
CPU
2005
2006
KBC
2010
KB
2003
RAM
2007
CRTC
2011
CRT
2004
FONT ROM
PROGRAM ROM
DATA ROM
2008
MC
2012
EXTERNAL MEMORY
2009
HOST I/O CONTROL SECTION
2001
2040
1000
LBP
2022
CPU
2025
2026
PRINTER I/O CONTROL SECTION
1001
2023
RAM
2027
PRINTING SECTION I/O
2029
PRINTING SECTION
2024
FONT ROM
PROGRAM ROM
DATA ROM
2030
OPERATION SECTION
2028
MC
2031
EXTERNAL MEMORY

FIG. 4A

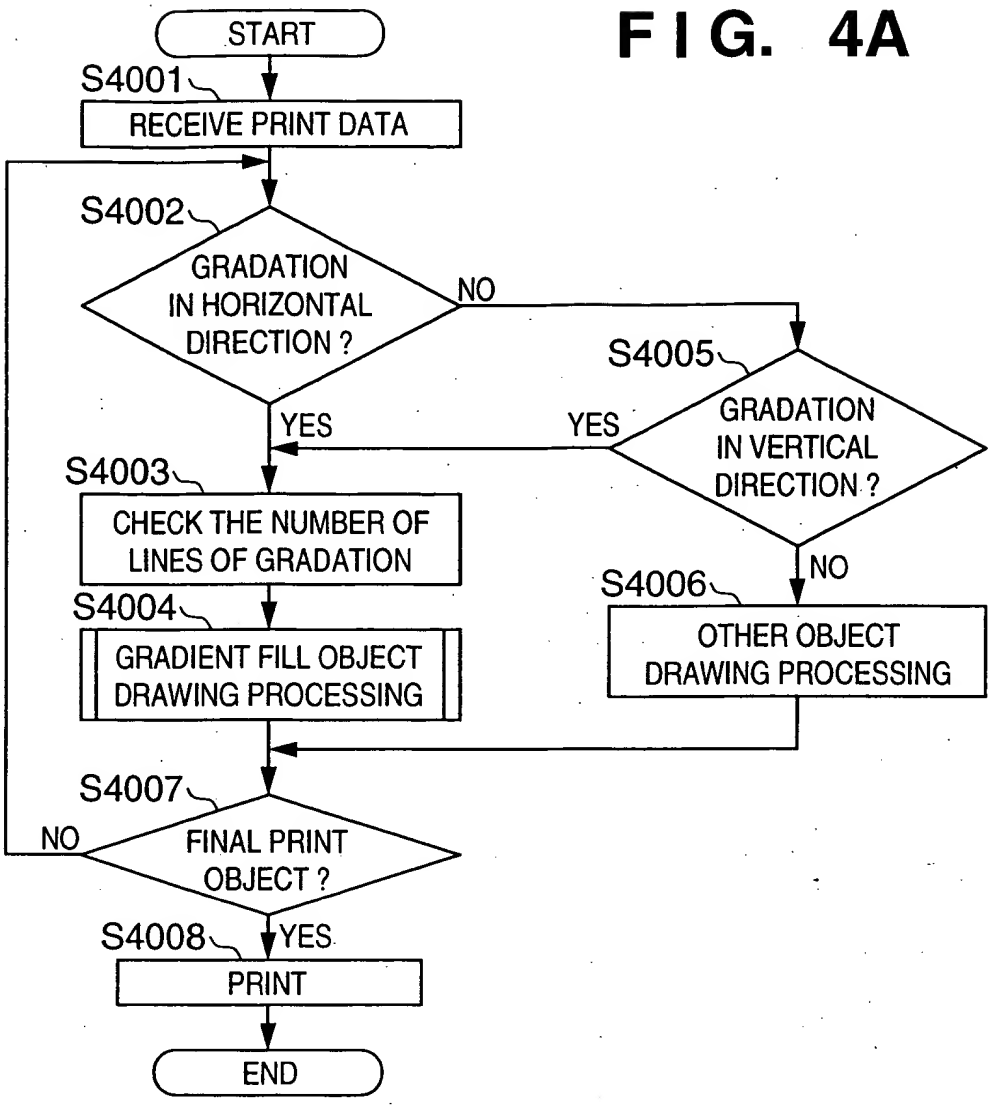

START
S4001
RECEIVE PRINT DATA
S4002
GRADATION IN HORIZONTAL DIRECTION ?
NO
YES
S4005
GRADATION IN VERTICAL DIRECTION ?
YES
NO
S4003
CHECK THE NUMBER OF LINES OF GRADATION
S4004
GRADIENT FILL OBJECT DRAWING PROCESSING
S4006
OTHER OBJECT DRAWING PROCESSING
S4007
FINAL PRINT OBJECT ?
NO
YES
S4008
PRINT
END

FIG. 4B

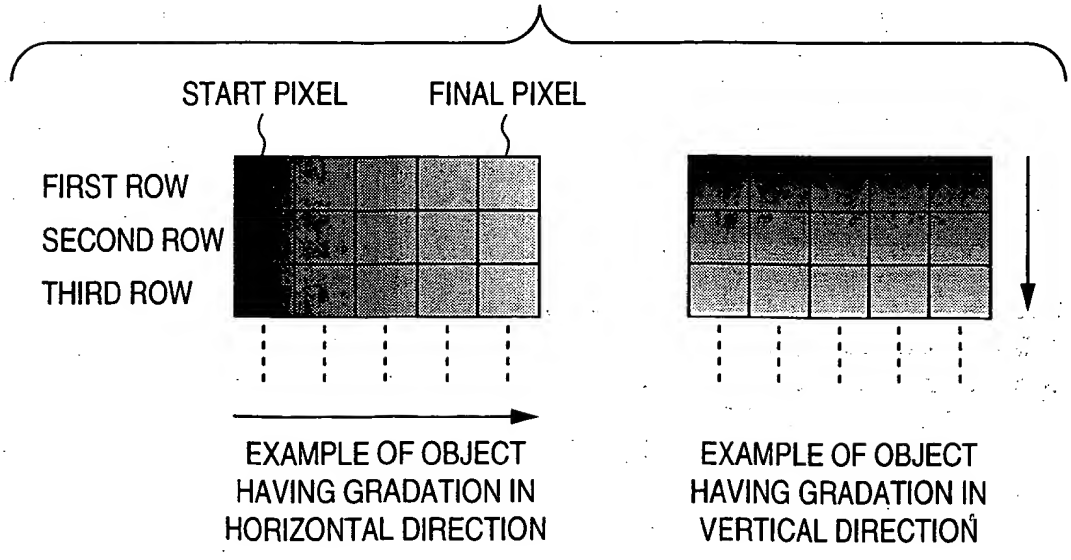

START PIXEL
FINAL PIXEL
FIRST ROW
SECOND ROW
THIRD ROW
EXAMPLE OF OBJECT HAVING GRADATION IN HORIZONTAL DIRECTION
EXAMPLE OF OBJECT HAVING GRADATION IN VERTICAL DIRECTION

FIG. 5

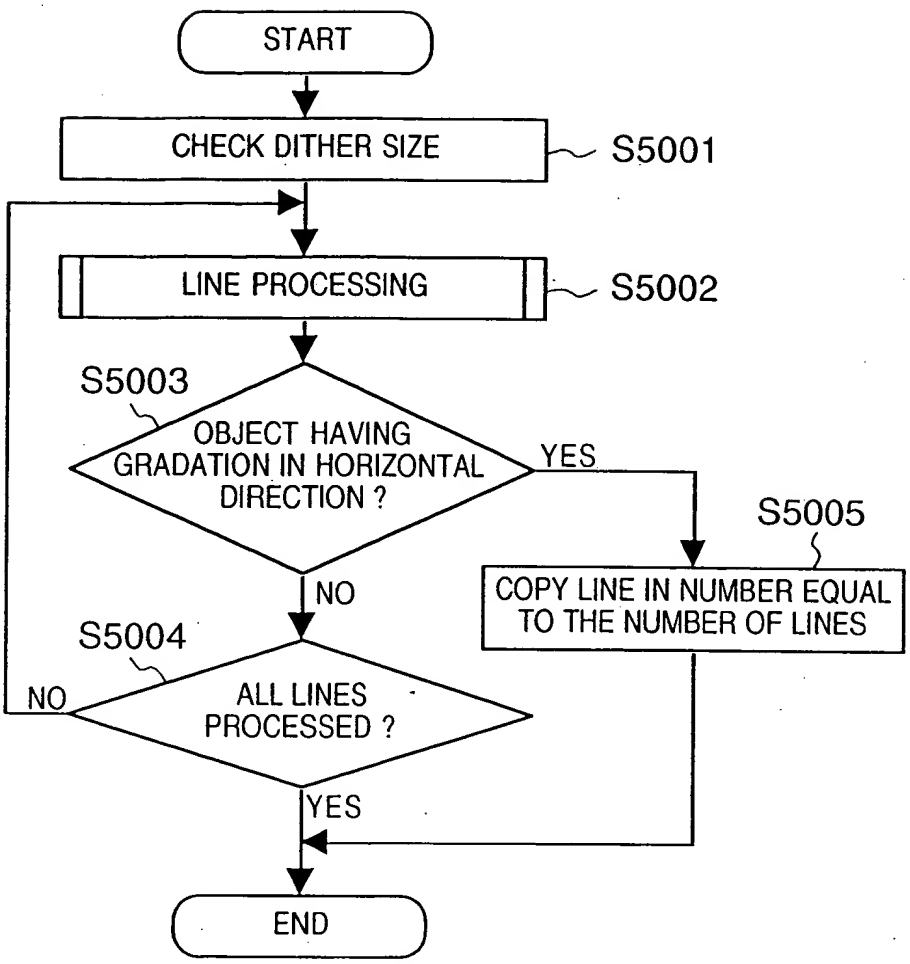
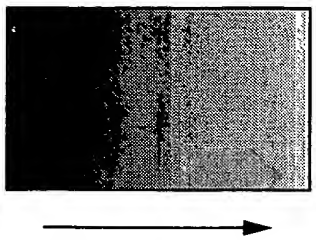
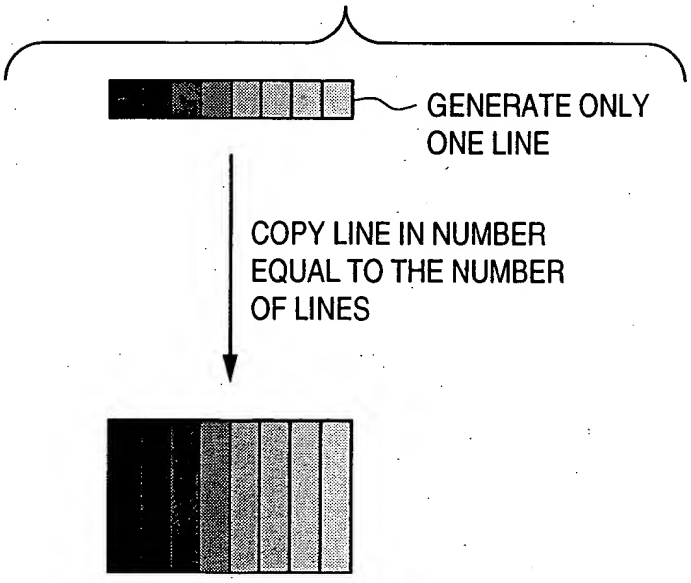

START
CHECK DITHER SIZE
S5001
LINE PROCESSING
S5002
S5003
OBJECT HAVING GRADATION IN HORIZONTAL DIRECTION ?
YES
S5005
COPY LINE IN NUMBER EQUAL TO THE NUMBER OF LINES
NO
S5004
NO
ALL LINES PROCESSED ?
YES
END

FIG. 6A



OBJECT HAVING GRADATION
IN HORIZONTAL DIRECTION

FIG. 6B



HIGH-SPEED GENERATION METHOD OF
GENERATING OBJECT WHICH HAS GRADATION
IN HORIZONTAL DIRECTION AND REPEATS THE
SAME PATTERN IN VERTICAL DIRECTION

FIG. 7

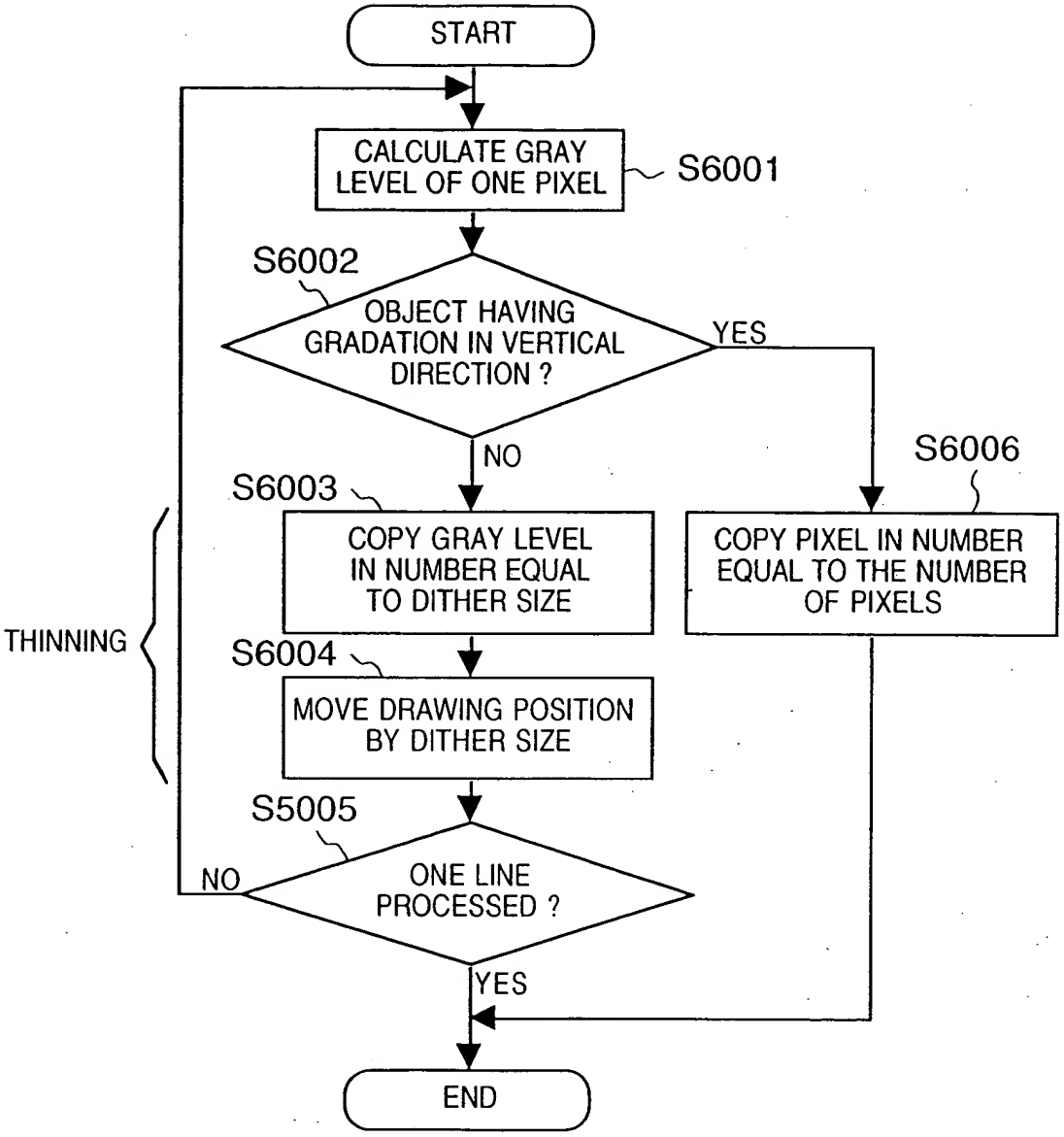
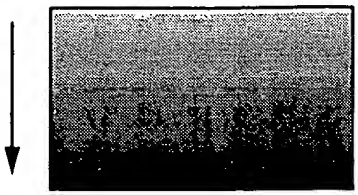
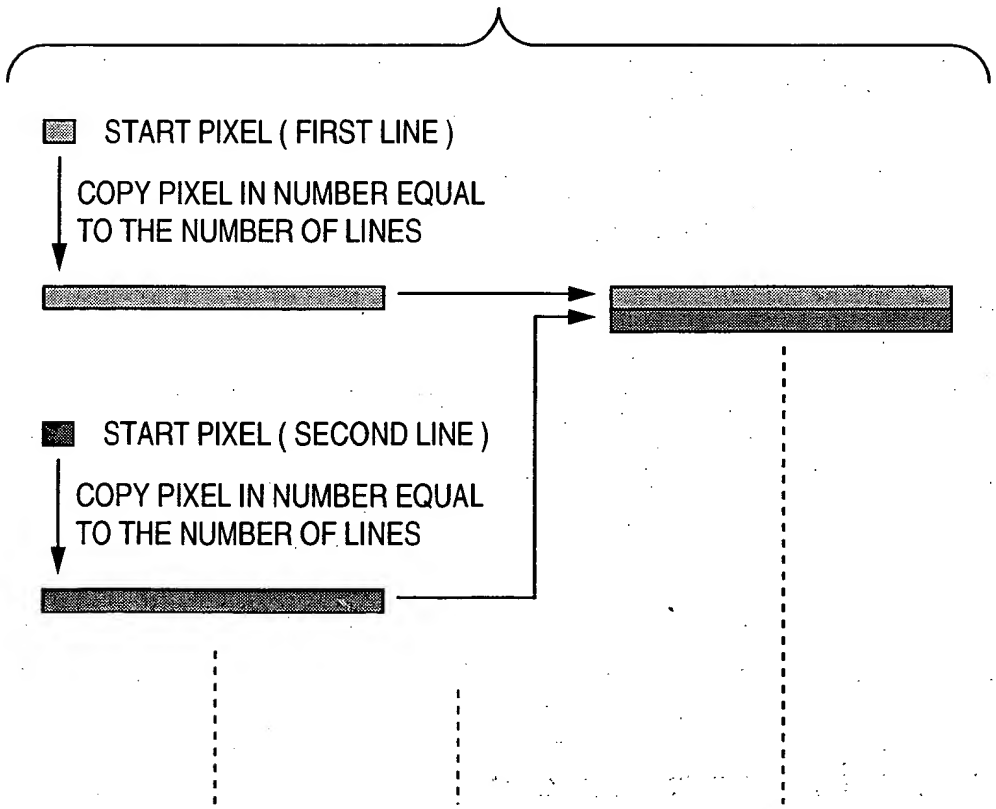

START
CALCULATE GRAY LEVEL OF ONE PIXEL
S6001
S6002
OBJECT HAVING GRADATION IN VERTICAL DIRECTION ?
YES
NO
S6006
S6003
COPY GRAY LEVEL IN NUMBER EQUAL TO DITHER SIZE
COPY PIXEL IN NUMBER EQUAL TO THE NUMBER OF PIXELS
THINNING
S6004
MOVE DRAWING POSITION BY DITHER SIZE
S5005
NO
ONE LINE PROCESSED ?
YES
END

FIG. 8A



OBJECT HAVING GRADATION
IN VERTICAL DIRECTION

FIG. 8B



HIGH-SPEED GENERATION METHOD OF
GENERATING OBJECT WHICH HAS GRADATION
IN VERTICAL DIRECTION AND REPEATS THE
SAME PATTERN IN HORIZONTAL DIRECTION

FIG. 9A

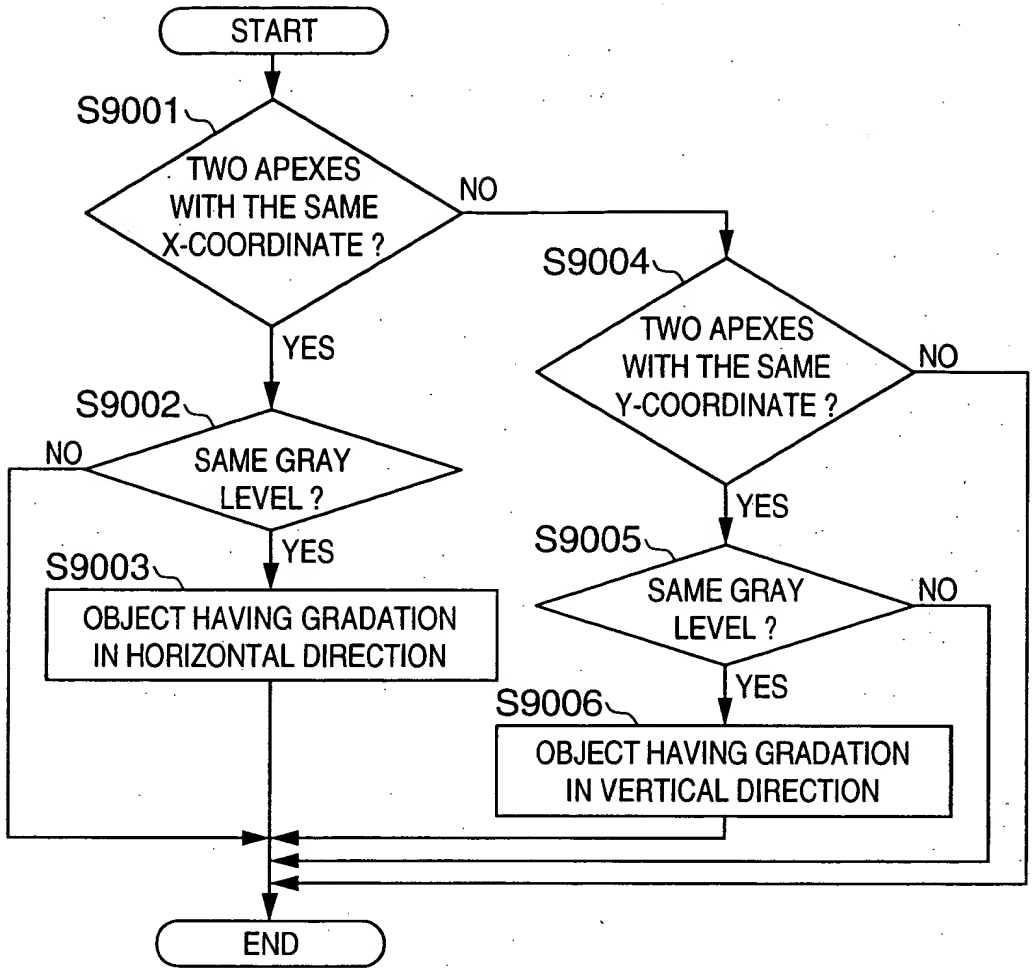
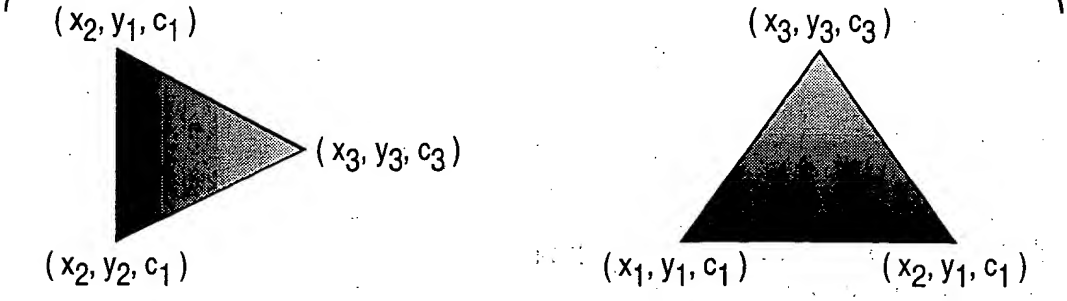


FIG. 9B



EXAMPLE OF OBJECT WHICH HAS GRADATION IN HORIZONTAL DIRECTION AND TWO APEXES AT THE SAME X-COORDINATE

EXAMPLE OF OBJECT WHICH HAS GRADATION IN VERTICAL DIRECTION AND TWO APEXES AT THE SAME Y-COORDINATE